Potomac Update

April 2000

A periodic publication designed to keep the public informed about the status of the Potomac Consolidated TRACON project.

The Baltimore-Washington area has the fourth busiest airspace in the United States. So, in order to keep safety at the center of air travel, the Federal Aviation Administration (FAA) decided to streamline its operations in the Potomac region. That effort is called the Potomac Consolidated TRACON (Terminal Radar Approach Control) Project (PCT). The PCT will consolidate four existing TRACON facilities located at Dulles, Reagan National, Baltimore-Washington, and Andrews Air Force Base, into one integrated facility. A TRACON controls aircraft approaching and departing airports, generally out to about 50 miles from the airport. There are two phases of the PCT project. The first is the construction of a new TRACON facility; the second is the redesign of the airspace controlled by that facility. The airspace redesign is expected to provide many benefits, including increased efficiency of operation that will save both fuel and time, as well as enhance safety. Effective airspace redesign is also expected to allow both arriving and departing flights to stay higher for longer periods of time. This will provide an overall environmental benefit. First, higher altitudes generally result in more efficient use of fuel. Second, higher altitudes reduce overall aircraft noise. An aircraft's distance from the ground clearly affects the level of noise that individuals on the ground can hear as well as the length of time that they hear it.

The New Facility

The construction of a new TRACON facility is necessary because none of the existing TRACON facilities within the Baltimore-Washington area is large enough to house the equipment and personnel necessary to control the consolidated airspace.

Following the procedures of the National Environmental Policy Act (NEPA), the FAA undertook a tiered Environmental Impact Statement (EIS) process to evaluate consolidation options and building alternatives. Because that first EIS found no environmental reasons to preclude construction, the FAA determined that the new TRACON facility would be built. That phase of the PCT project is well underway. The FAA acquired approximately 30 acres of land for the new facility at Vint Hill in Fauquier County near Warrenton, VA. Groundbreaking for the 95,000 square foot state-of-the-art building took place on March 6, 2000, with an expected construction completion date of July 2001. After building completion, air traffic control systems installation and testing will take approximately one year. The facility commissioning is scheduled for May 2002.

Where Are We Now?

With today's four separate TRACONs, the FAA maintains safety by sacrificing efficiency in aircraft operations. One new TRACON facility will simplify pilot to controller and controller to controller communications, thus increasing safety, and will allow the FAA to manage and control airspace better. Now that the decision to consolidate has been made, it makes good sense to redesign the airspace.

Consistent with the NEPA process, the FAA has just begun work on a second tier Environmental Impact Statement (EIS) focusing on airspace redesign. The tier two EIS will evaluate alternative routes and altitudes for aircraft flying in the Baltimore-Washington area. As part of the NEPA process, the FAA conducted public meetings (called scoping meetings) in order for the public and other governmental agencies to identify environmental issues and propose alternatives for the FAA to consider. The FAA held eleven of these scoping meetings throughout the Baltimore-Washington area in late 1999.

What Airspace Will Be Redesigned?

The PCT Airspace Redesign Study will look at changes in an area of approximately 75 miles around Washington. Alternatives developed by this study will not change existing noise abatement procedures at an airport. These procedures have been worked out over the years by compromise among the airport, the regional planning organizations, and the public. In fact, any effort to change landing or take-off procedures for noise abatement purposes should be initiated by and is a function of the airport authority and not the FAA. As a result, those who live close to an airport will not see changes as a result of the redesign.

1999 Potomac TRACON Airspace EIS Scoping Meetings

Oct. 19
Dulles Hilton
2 meetings

Oct. 20
Gaithersburg Hilton
2 meetings

Oct. 21
Washington Holiday Inn
1 meeting

Oct. 26
Clinton Colony South
2 meetings

Oct. 27
Baltimore MITAGS
2 meetings

Oct. 28
Arlington NREC
2 meetings

Who Will Redesign Airspace?

The Airspace Redesign Team includes currently certified air traffic controllers from both union and management from three of the affected TRACONs (BWI, National and Dulles) as well as the Washington Air Route Traffic Control Center. In other words, the team is made up of individuals who have direct, hands-on experience in working with the current airspace. The team will design multiple airspace alternatives and validate the model of airspace designs.

The team built a baseline of current airspace routes. The baseline, taken from radar and other data, captures the current operations in a model that includes routes, flows of traffic, altitudes, and a general picture of how the airspace is used today. All airspace redesign models will be compared against the baseline.

How Will The Redesign Process Work?

Objectives of Airspace Redesign

- ☆ To reduce congestion in sectors
- ☆ Shorten routes
- ☆ Segregate routes for aircraft of dissimilar operating characteristics (for example turboprop and jet aircraft)
- ☆ Impose fewer restrictions on climbing departure aircraft
- ☆ Allow arrival aircraft to remain at higher more fuel efficient altitudes for longer periods
- ☆ Provide better use of existing radar data
- ☆ Utilize point to point navigation
- ☆ Build in flexibility
- ☆ Accommodate growth
- ☆ Produce minimum environmental impact

Ultimately, the goal of redesign is to develop alternative airspace designs that ensure a safe, orderly, efficient operation with minimum impact to those on the ground. In working to achieve this goal, the FAA will be balancing the operational, environmental and economic needs of all stakeholders.

The airspace designers brainstorm the redesign and then take their ideas and build a model representing their vision. The models, when compared against the baseline, will allow measurements in three areas: (1) environmental, (2) user costs and (3) analysis of air traffic factors. The environmental measurement will assess noise impacts and changes in noise exposure on the population. The user cost measurement will examine operating and fuel costs by evaluating flight times, distance, and altitude. The traffic factors measurement will consider traffic volume, congestion, conflicts, and potential future growth. Designers will employ three computer simulation and analysis technologies in determining their measurements, NIRS (Noise Integrated Routing System), TAAM (Total Airspace and Airport Modeler) and SDAT (Sector Design and Analysis Tool).

The design and modeling process will not result in any decision concerning a redesigned airspace. Rather, it will produce the data that will become part of the EIS process and will go to the actual decision-makers.

Is Airspace Redesign Necessary?

The purpose of the PCT airspace redesign is to address and to correct problems that have been identified. It will assist the FAA in reducing delays, preventing operational incidents and accommodating the projected growth of air traffic in the area in the future.

Safety is the primary consideration in the redesign effort. The FAA believes that in a redesigned airspace it can reduce or eliminate current restrictions that inhibit aircraft climbing at a steady rate as they depart an airport, as well as allow arriving aircraft to stay at higher altitudes longer as they approach the airport. Getting aircraft higher, faster, and keeping them higher longer contribute to improved safety. Airplanes close to the ground have less time to react in the event of problems than do those at higher altitudes, so higher means safer. Higher altitudes are better from an environmental perspective, because they generally create less noise on the ground. Higher is also better operationally, because fuel efficiency improves with altitude.

Some of the Problems That Have Been Identified Are:

- Aircraft routinely separated from adjacent airspace versus other aircraft
- Excessive maneuvering due to inefficient routes and profiles
- Excessive pilot/controller and controller/controller coordination
- Mixing of dissimilar types of aircraft at arrival fixes
- Single departure routes for dissimilar aircraft
- Projected increased demand for Air Traffic Control services
- Areas with limited or no radar service
- Operational incidents

What Will The Redesigned Airspace Look Like?

We don't know yet. But designers will be attempting not only to get planes higher sooner and keep them higher longer but also to create more direct routes to and from airports. The current TRACON arrangements require indirect routing of airplanes. In a consolidated TRACON, together with improvements in satellite navigation technology, the FAA can greatly reduce the overall number of aircraft experiencing indirect routing. The following are examples of how that might be accomplished.

When planes today are landing to the south at Washington's Reagan National airport, arrivals from the upstate New York area are routed over Philipsburg, PA, then via Harrisburg and southeast towards Aberdeen, Maryland.

Near Aberdeen they descend to an altitude of 12,000 feet, before turning southwest toward Baltimore and Washington. These aircraft cross Baltimore at 10,000 feet, then turn back to the southwest and join the Potomac River approach at the American Legion Bridge in the vicinity of Potomac, MD. Routed this way airplanes travel a total distance of approximately 178 miles.

One alternative routing might bring these aircraft to Washington on a more direct route. Instead of proceeding southeast toward Aberdeen, they would proceed from Philipsburg, PA, towards Harrisburg, PA, then directly south toward Westminster, MD. At Westminster they would be flying at an altitude of approximately 13,000 feet. After Westminster, they would continue to descend and proceed directly to the American Legion Bridge to join the Potomac River approach. The planes would pass the American Legion Bridge at or above 3,000 feet as they do today. The total distance planes would travel using this route is approximately 146 miles.

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Another alternative would be to have these aircraft leave Philipsburg, PA, on a southeast route towards Frederick, MD. They would pass east of Thurmont, MD, at approximately 15,000 feet, where they would begin a direct descent toward the American Legion Bridge.

When aircraft are departing to the north from Reagan National, jets bound for airports to the west (such as St. Louis and Chicago) follow the Potomac River until over the American Legion Bridge. At the bridge they turn due south and fly south for approximately 10 miles, then proceed northwest for another 10 miles before they turn on course west.

In one alternative these jets would follow the Potomac River to the American Legion Bridge and then turn on course. This route would save approximately 20 miles. Another alternative would route these departing flights to the bridge, then southwest towards Fredericksburg, VA, for approximately 15 miles before turning west.

When planes are landing to the south at Dulles today, jet aircraft coming from airports in the south (such as Miami or Atlanta) arrive over Fredericksburg at 10,000 feet. Jets continue north after Fredericksburg and begin a descent to 5000 feet. They cross Dale City at 5,000 feet. This traffic continues to cross just west of Fairfax City at 4,000 feet, remains at 4,000 feet over Reston, VA, and maintains 4,000 feet until approximately 10 miles northeast of Dulles. At this point, jet traffic turns west over Germantown, MD, and then turns south on final approach.

In one alternative in redesigned airspace, these jets would use today's arrival route, but they would operate at much higher altitudes. Traffic would cross Fredericksburg at altitudes above 11,000 feet and descend to cross east of Dulles over the Herndon/Reston area at 8,000 feet.

In another alternative, jets would fly to a point 5 miles north of Fredericksburg and remain at altitudes above 10,000 feet. These planes would then proceed directly to Dulles and cross the airport at 9,000 feet on a northwest course. The jets would begin a descent and continue to a point 5 miles northwest of Dulles before turning north at 6,000 feet. They would continue north until approximately 10 miles northwest of Dulles where they would turn east for 3 miles and then south on the final approach.

When planes are departing to the south from Dulles today, those bound for airports to the southeast (such as Miami), are initially routed west and north towards Gaithersburg, MD, and then southeast to their destinations. Because of the current airspace constraints, these planes fly an additional 30 miles before turning on course.

One alternative would allow these jets to head south and climb to cruising altitudes on course sooner. Most would turn southeast in the vicinity of Fredericksburg, VA, at 10,000 feet.

Another alternative would still route these jets to the north but allow them to turn east much sooner. This departure flow would be parallel to but north of the departure flow from Reagan National Airport and would turn southeast on course approximately 15 miles north of Washington, DC.

Today, almost every BWI west bound jet departure flies over Columbia, MD. BWI jet departures enroute to airports west and southwest of BWI, such as Dallas, Nashville, or Memphis, are routinely cleared to 17,000 feet without restriction, but are routed due west for 25 miles before being cleared on course, even if there is no conflicting traffic.

One alternative airspace design would give air traffic controllers the ability to turn many jets on course earlier. With this added flexibility, departures would receive more direct routings and fly fewer route miles. This alternative design would naturally disperse west bound departures and would reduce the concentration of one departure flow over one specific area.

Another alternative would allow west bound departures to turn toward the east then south in the vacinity of the Fort Meade area. They would then continue south to an area east of Andrews Air Force Base then be turned on course southwest. This alternative would allow jets leaving BWI to reach higher altitudes sooner.

When BWI is landing to the northwest, jet arrivals from the west (such as Pittsburgh, Detroit, or Dallas) are routed via Martinsburg, WV, to Westminster, MD. These jets descend to 5,000 feet as they pass Martinsburg east towards Martin

State Airport, then proceed south from Martin towards Annapolis, before turning to the northwest on final approach. Jets on this route routinely fly 65 miles below 10,000 feet.

One alternative to today's practice is to route these jets from over Martinsburg, WV, on a direct route toward BWI Airport. This traffic would continue direct to BWI until 5 miles west of BWI, which is just east of Columbia, MD, then turn southeast. This proposed route would pass over Fort Meade and be approximately 30 miles shorter than today's route.

It is anticipated the new airspace will be implemented in early 2003.

Another alternative would route jets inbound from Martinsburg, WV, on a direct route towards Westminster, MD. After Westminster, jets would fly southeast over Baltimore City, then continue southeast over the Severna Park area. From there aircraft would turn southwest towards the Annapolis area, then northwest on final approach into BWI. This traffic would cross Westminster at 11,000 feet, over Baltimore City at 8,000 feet and Severna Park at or above 5,000 feet.

What's Next?

The Airspace Redesign team will continue to develop a baseline and alternative airspace models. Now that the public scoping meetings have been held and the scoping period has concluded, the FAA will continue to follow the NEPA process. The tier two Draft EIS will be released in spring 2001 and a public comment period will follow. After that, the FAA will release its final EIS in spring 2002 and a Record of Decision in summer 2002. It is anticipated the new airspace could be implemented in early 2003.

PCT Points of Contact

If you have questions about PCT, please call us at:
1-800-762-9531

We also encourage you to visit our web site at:
http://www.faa.gov/ats/potomac

FAA Air Traffic Control System
Command Center
Potomac Program Office
13600 EDS Drive, Suite 100
Herndon, Virginia 20171